QUIZ 24th May 2017 (answers below)

1. **Describe the 2 modes of volume control ventilation on the Oxylog 3000.**

2. **Describe the 2 modes of pressure control ventilation on the Oxylog 3000.**

3. **What actions do you take when the Oxylog alarms with "!!!Paw high"?**

4. **How do you adjust the I:E ratio on the Oxylog 3000?**

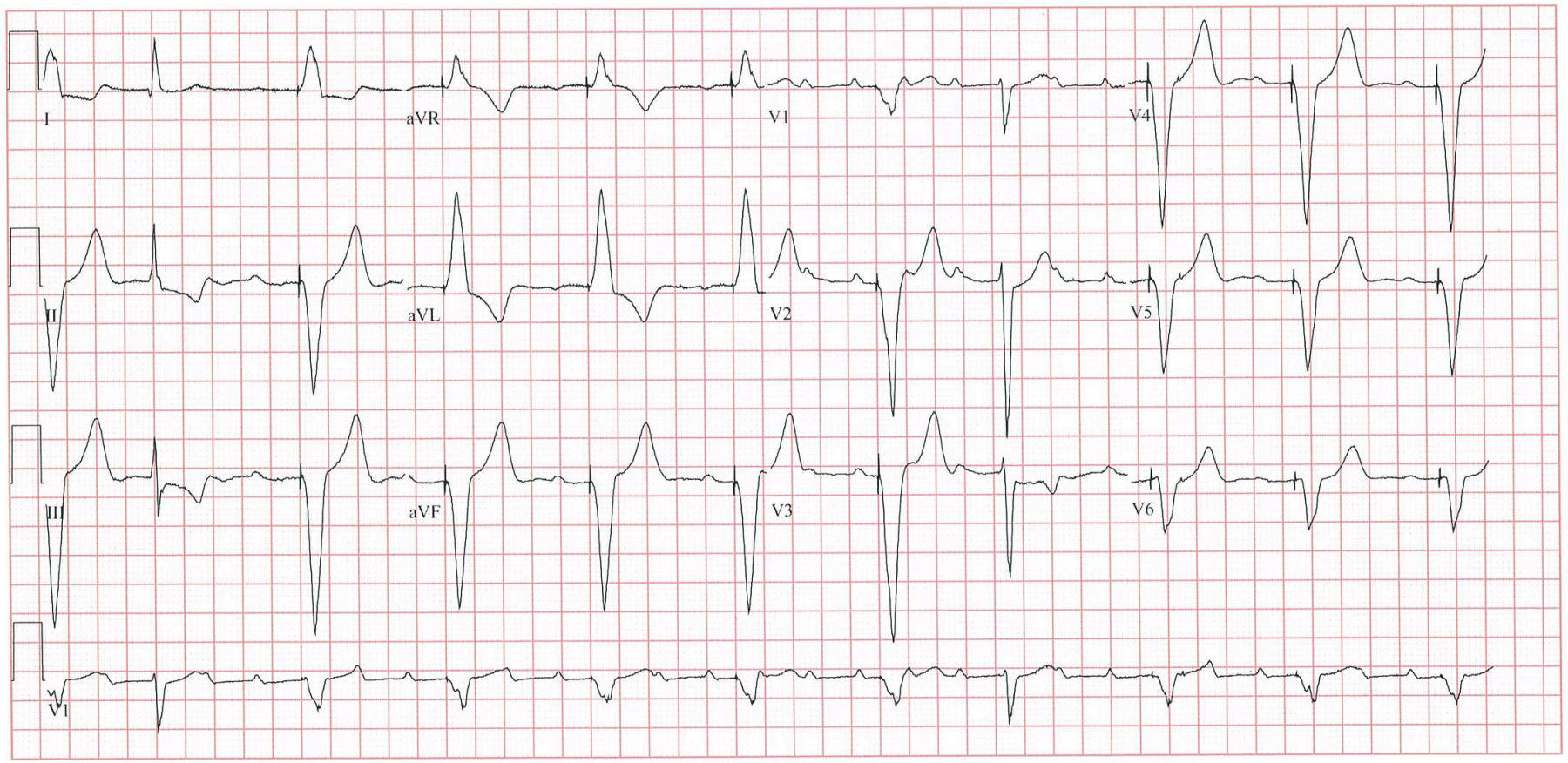
5. **Describe and interpret the following ECG.**

St Vincent'sHospital-ED

Vent. rate	60	BPM
PR interval	*	ms
QRS duration	186	ms
QT/QTc	516/516	ms
P-R-T axes	87 -72	93

Technician:
Test ind:

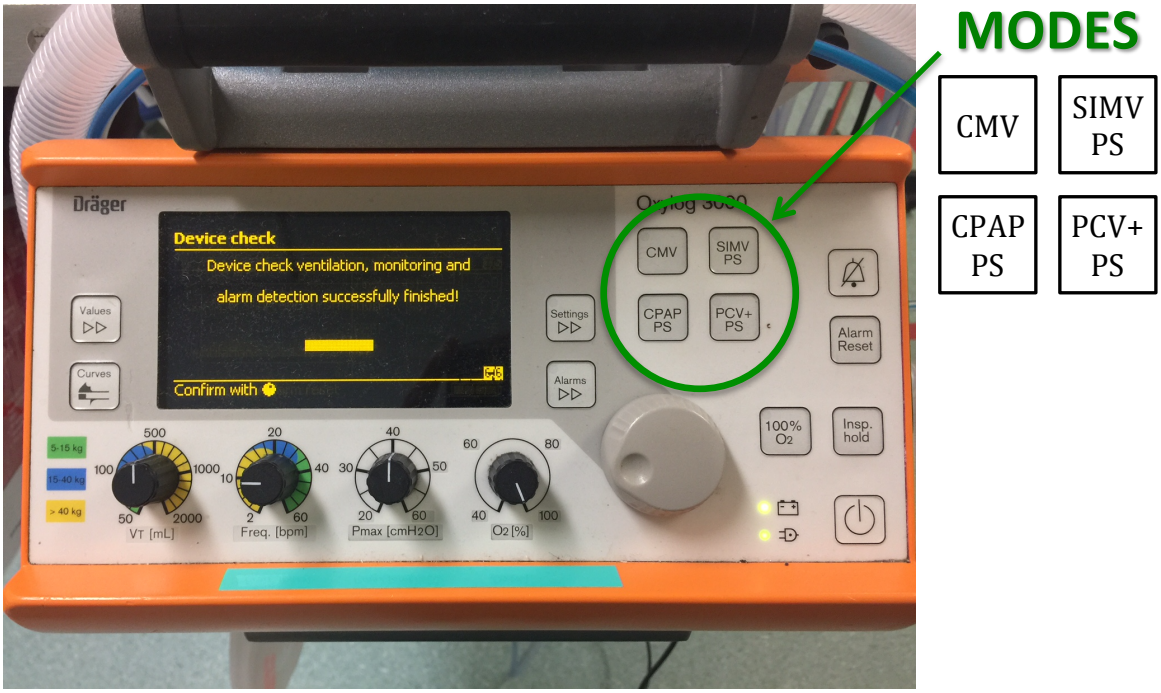
Unconfirmed



25mm/s 10mm/mV 100Hz 9.0.0 12SL 241 HD CID: 16

EID: EDT: ORDER:

QUIZ answers 24th May 2017



1. **Describe the 2 modes of volume control ventilation on the Oxylog 3000.**

CMV (Controlled Mandatory Ventilation) is a volume control mode of ventilation where the selected Volume (Vt) is delivered at a set rate (Freq). The breaths in this mode of ventilation are delivered at the set times; there is no coordination with the patient's breathing effort. This is on a background of selected Positive End Expiratory Pressure (PEEP). There is a selected maximal airway pressure that the volume delivery can't go above.

SIMV PS (Synchronised Intermittent Mandatory Ventilation with Pressure Support) is the preferred mode of ventilation in SVH ED and should be the default mode. It is also a volume controlled mode of ventilation but differs from CMV in that it coordinates with the patient's own breathing efforts; i.e. it is synchronised. There is still a mandated minute volume (Vt x freq), but there is a small window around the timing of the breath where it can be delivered in time with the patient's effort. There is a selected maximal airway pressure that the volume delivery can't go above. This is on a background of selected PEEP.

In SIMV ASB/PS there is also the opportunity for the patient to take spontaneous breaths in addition to the synchronised mandated volume controlled breaths. These spontaneous breaths are supported with a selected pressure, i.e. pressure support. Pressure support is only applied to spontaneous breaths. These spontaneous breaths are in addition to the volume selected mandated breaths.

2. Describe the 2 modes of pressure control ventilation on the Oxylog 3000.

PCV+PS (Pressure Controlled Ventilation with Pressure Support) is a pressure controlled mode of ventilation. An inspiratory pressure is selected and is delivered at a set frequency. Like SIMV above, there is a small window during which time the pressure delivery will be coordinated with the patient's own effort. The selected PEEP value is the expiratory pressure. The volume achieved (Vt) with each breath can be viewed by scrolling through the Values>>. There are alarm limits for minimum and maximum minute ventilation.

CPAP PS (Continuous Positive Airway Pressure with Pressure Support) is for patients that are breathing spontaneously. It gives patients CPAP (aka PEEP) and any respiratory effort is rewarded with pressure (i.e. Pressure Support). So it is effectively BiPAP for spontaneously breathing intubated patients. We don't use it in ED.

3. What actions do you take when the Oxylog alarms with "!!!Paw high"?

Whenever the ventilator alarms, we need to look at the patient. If there is any compromise to the patient, such as desaturation or not ventilating, then they should be disconnected from the ventilator and bagged by hand until the problem is sorted out.

"!!!Paw high" means that the selected maximum airway pressure (Pmax) has been reached. The ventilator will not be able to go above this level and so the selected Vt may not be delivered. High airway pressure can be the result of a problem with the patient, the tubing and/or the ventilator.

Patient issues

- *Coughing or awake and breathing against the ventilator*
- *Progression of lung pathology – bronchoconstriction, ARDS*
- *External compression such as pneumothorax*
- *Increased secretions*
- *Position – supine with large abdomen pressing up against diaphragm*

Tubing issues

- *Malpositioned tube*
- *Kinked tube*

Ventilator issues

- *Settings may be too ambitious (eg. large Vt to be delivered too fast or frequently)*
- *P Max may be set too low for the clinical situation (eg. lung pathology)*

4. How do you adjust the I:E ratio on the Oxylog 3000?

Rather than choosing a certain I:E ratio, it is determined by the chosen inspiratory time (Tinsp) and chosen respiratory rate (freq). Tinsp is found by scrolling through Settings>> . As the Tisp is altered, the associated I:E ratio appears at the bottom of the window so you don't need to calculate it yourself.

5. Describe and interpret the following ECG.

There is a paced ventricular rhythm at 60/min. Ventricular beats #2 and #8 are native beats that occur faster than 60/min and inhibit pacing (replace the paced beat)
There is a native atrial rate of 166/min that is not conducted.

- ➔ *complete heart block*
- ➔ *atrial tachycardia*
- ➔ *ventricular pacing 60/min VVI*

The owner of this ECG is elderly and has dual chamber leads. In the past he had DDD pacing, but it is now set to VVI mode due to chronic paroxysmal atrial fibrillation, tachycardia or flutter. The ventricular rate 60/min gives sufficient cardiac output for his level of activity.